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(19) (CA) **CANADIAN PATENT** (12)

(54) Apparatus for Packaging Sea-Produce in a Net-Sock for
Drying

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ABSTRACT OF THE DISCLOSURE

Apparatus for packaging sea-produce in a net sock, comprising a conveying means having an inlet and an outlet for conveying sea-produce from the inlet to the outlet; feed means in communication with the inlet of the conveying means for feeding sea-produce to the inlet of the conveying means; and net sock holding means coupled to the outlet of the conveying means and including a net-receiving means for receiving an elongated net sock and for permitting the elongated net sock to be gradually released from the net-receiving means as it fills with sea-produce conveyed by said conveying means to said net sock.

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" APPARATUS FOR PACKAGING SEA-PRODUCE
IN A NET-SOCK FOR DRYING "

BACKGROUND OF THE INVENTION

This invention relates to apparatus for packaging sea-produce, such as fish, fish heads, back-strips and other sea produce into a net sock for drying.

The object of the present invention is to provide a device for netting fish heads, or other sea produce as mentioned above in an automatic and simple manner, and which requires a minimum of operator intervention.



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SUMMARY OF THE INVENTION

According to the invention, apparatus for packaging sea-produce in a net sock, comprises: a conveying means having an inlet and an outlet, the conveying means conveying said sea-produce from said inlet to said outlet; feed means in communication with the inlet of the conveying means for feeding the sea-produce to the inlet of the conveying means; and net sock holding means coupled to the outlet of the conveying means and including net receiving means for receiving an elongated sea-produce receiving net sock, and for permitting the elongated net sock to be gradually released from the net receiving means as it fills with sea-produce conveyed to the net sock by the conveying means.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front elevation of an embodiment of the invention;

Fig. 2 is a top plan view of the embodiment of Fig. 1; and

Fig. 3 is a cross-section along lines III-III in Fig. 2 showing inner portions of the illustrated embodiment.

DETAILED DESCRIPTION

Referring to the drawings, the apparatus of the present invention comprises an inlet chute 7 which opens down into a cylindrical conveying means 1. The cylindrical conveying means 1 comprises an endless conveying chain 3 passing through a groove or elongated opening in the bottom cylindrical member 1 (see Fig. 2). The chain 3 extends from underneath said chute 7 to an outlet end of the cylinder 1. The chain 3 has upwardly extending spades or lugs 10 fixed thereto and is operatively driven by a motor 2. The motor 2 drives the chain 3 by means of a chain wheel 20 coupled to the output shaft of the motor and a second chain wheel 21 driven from chain wheel 20 via an intermediate chain or drive belt 22. Chain wheel 21 is connected via a shaft 23 to a chain wheel 24 which drives endless chain 3 by means of, for example, cogs, as is well known in the art. More than one chain, for example two chains as seen in Fig. 2, can be provided, the respective chains passing through respective grooves or elongated openings in the cylinder 1. The chains may be driven

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by separate chain wheels, such as chain wheel 24, the separate chain wheels being all connected to shaft 23. At the other end of the endless chain 3 are idler wheels 25, one provided for each chain, which are mounted to a shaft 26 via bearings 4. Intermediate chain supports 9 are preferably provided to prevent sagging of the chain between the chain wheels 24,25. Alternatively, additional idler chain wheels could be provided in place of the respective chain supports 9 shown in Fig. 2.

At the outlet end of the cylindrical member 1 is a net receiving cylindrical extension or housing 11 extending outwardly from the cylinder 1 and receiving thereon an elongated net 12, called hereafter "a net sock" 12. The net sock 12 is bunched up or loaded onto the outer surface of cylindrical extension 11, as indicated at 8.

In operation, the sea-produce, such as fish heads are fed via a conveyor 30 to the chute 7, and fall down through the chute 7 to the inlet end of the conveyor 1. The fish heads (or other sea-produce) are pushed by the spades or lugs 10 of the endless chain 3 (which travel in the direction of the arrow A in Fig. 1) along the conveyor cylinder 1 through the net-receiving cylindrical extension 11 and out into the expandible net-sock 12 which is arranged on the outside of

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the extension cylinder 11, as described above. The net-sock containing the sea-produce is stuffed with the sea-produce by means of the moving chain 3 and it is either pushed off of the extension cylinder 11 by means of the pressure produced by the moving chain 3, or may be pulled off by an operator as the net-sock becomes filled with sea-produce. The net-sock 12 containing the sea-produce then may be along a table or other receiving member 40 where the contents of the net-sock can be divided into suitable sizes and the ends may be closed off, either automatically or by means of an operator. Fig. 3 shows at the right hand end of the net-sock 12 how, for example, the filled net-sock may be sub-divided into suitable sizes.

As seen in the drawings, a ring-shaped member 50 is preferably provided around the cylindrical extension 11 and spaced a small distance from the outer surface of cylindrical extension 11. In use, the net-sock 12 passes between the cylindrical extension 11 and the ring member 50 in order to regulate the outward feeding of the net-sock 12 under pressure of the feeding chains 3 or under pulling pressure by an operator. The ring member 50 is preferably retained in place by elongated arms 51 (one placed on either side of the ring 50),

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which arms 51 are anchored to the conveyor 1, for example by welding, or other means. Alternatively, the arms 51 can be anchored along cylindrical extension 11. The ring 50 and arms 51 regulate the feeding of the net-sock 12 and prevents the bunched portions 8 from being inadvertently pulled off of the cylindrical extension 11 during operation of the device since the bunched portion cannot pass between the ring 50 and the outer surface of cylindrical extension 11.

The chute 7 may be replaced by other feed inlet devices which are mounted so as to communicate with the intake opening of the conveyor 1. For example, if the equipment is connected to another fish processing apparatus, conveyors or the like may be provided to feed the processed fish produce into the inlet of the conveyor 1, which will then in turn feed the produce by means of chains 3 and spades or lugs 10 into the net-sock 12 loaded on the extension 11 connected to the outlet end of the conveyor.

The geared motor 2 is shown arranged on a frame which is fixed at the bottom of the cylindrical conveyor 1. This arrangement may be modified, as should be apparent to those skilled in the art.

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Various modifications can be made to the embodiment illustrated and described hereinabove. For example, the conveyor 1 and/or the extension member 11 need not be cylindrical. They may be rectangular, oval or any other
5 suitable shape, as desired. Also, the endless chain conveyor 3 can be replaced with a conveyor belt, similar to conveyor belt 30, having lugs or other produce-moving protrusions thereon to provide the proper pressure to force produce into the net-sock 12. Various further modifications
1) can be made within the scope of the invention as defined by the appended claims.

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CLAIMS:

1. Apparatus for packaging sea-produce in a net sock, comprising:

a conveying means (1,3,10) having an inlet and an outlet, said conveying means conveying said sea-produce from said inlet to said outlet;

feed means (7) in communication with the inlet of said conveying means for feeding said sea-produce to said inlet of said conveying means;

net sock holding means (11) coupled to said outlet of said conveying means and including net receiving means for receiving an elongated sea-produce receiving net sock (12), and for permitting said elongated net sock (12) to be gradually released from said net receiving means as it fills with sea-produce conveyed to said net sock by said conveying means.

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2. The apparatus of claim 1, wherein said net receiving means comprises an elongated housing (11) coupled to the outlet of said conveyor means and receiving said net thereon.

3. The apparatus of claim 2, wherein said elongated housing comprises means (50,51) for controlling the removal of said net sock from said net receiving means.

4. The apparatus of claim 3, wherein said net removal controlling means comprises a generally ring-shaped member (50) surrounding said elongated net-receiving means (11) and spaced a small distance therefrom, said net sock being fed out from said elongated net-receiving means (11) between said elongated net receiving means and said ring-shaped member (50).

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5. The apparatus of claim 1, wherein said feed means coupled to said inlet comprises a chute.

6. The apparatus of claim 1, wherein said conveying means includes a lower surface and protrusions (10) extending upwardly of said lower surface and movable relative to said lower surface from said inlet to said outlet of said conveying means, and moving said sea-produce along said conveying means to said net sock means to force said sea-produce into a net sock received on said net sock holding means.

7. The apparatus of claim 6, wherein said conveying means comprises an endless chain-like means (3) coupled to said protrusions (10) for driving said protrusions from said inlet to said outlet of said conveying means; and means (2) for driving chain-like means (3).

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8. The apparatus of claim 1, wherein said conveying means and said net sock holding means comprise respective cylindrical members coupled to each other in a substantially end-to-end manner.



FIG. 3

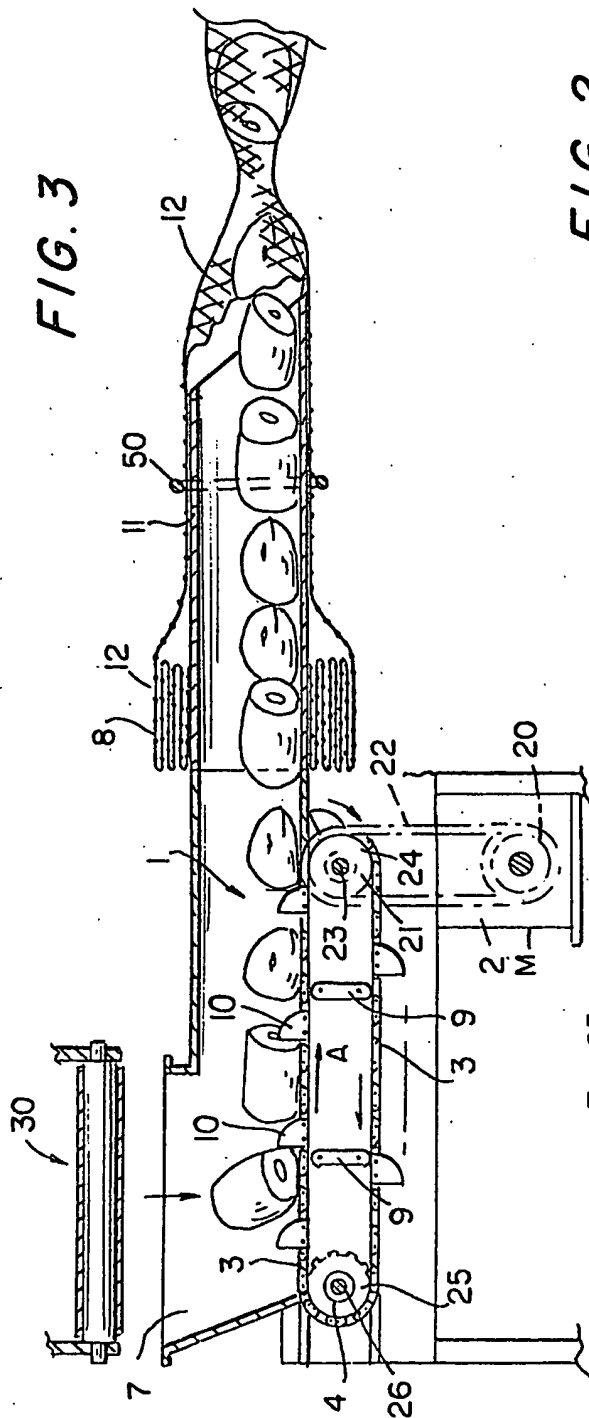


FIG. 2

